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REVIEW OF THE
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A JOURNAL OF ELECTRICAL, SCIENTIFIC AND MECHANICAL NEWS.

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Old and New.

Long have the poets vaunted in their lays
  Old times, old loves, old friendships and old wine.
Why should the old monopolize all praise?
    Then let the new claim mine.

Give me strong new friends when the old prove weak
  And fail me in my darkest hour of need.
Why perish with the ship that springs a leak
    Or lean upon a reed?

Give me new love, warm, palpitating, sweet,
  When all the grace and beauty leaves the old,
When like a rose it withers at my feet,
    Or, like a hearth, grows cold.

Give me new times, bright with a prosperous cheer,
  In place of old tear-blotted, burdened days.
I hold a sunlit present far more dear
    And worthy of my praise.

When the old creeds are threadbare and worn through,
  Or all too narrow for the broadening soul,
Give me the fine, firm texture of the new,
    Fair beautiful and whole.

Two Weeks in Three Provinces.

The absence of my presence from the columns of your last issue, Mr. Editor, is accounted for (satisfactorily, I hope,) by absence from my accustomed sanctum, and also from home, and correspondingly by my presence in a land where the reporter and interviewer are almost unknown; a land where the editor ceased from troubling, and the writer was at rest.

Tired of work, weary of conventions, clam-bakes, and jamborees of any sort whatsoever, your correspondent turned his back on Boston, baked beans, and 95 Milk street for a short time, and his face to the rising sun. And a more interesting journey he never had.

The first halting-place was St. John, N. B., a city of from thirty-eight to forty thousand inhabitants. It will be remembered that as late as 1877 St. John suffered from a fire, which, in proportion to the size of the city, ranked with the earlier fires of Portland, Chicago, and Boston, and which destroyed its entire business district and a considerable number of residences. The signs of this fire are still numerous, but it is wonderful to see how the city, phœnix-like, has risen from its ashes, more beautiful than ever. The fire found St. John "wood," but now it is brick. The stores, wholesale and retail, are first-class, and a general air of business prosperity pervades the whole. No one now walking through St. John could suppose that only five years ago 1,612 houses, covering an area of 200 acres, were destroyed; the value of the property being estimated at $27,000,000.

Although I visited St. John both when bound east and west, I propose to save prolixity to lump my impressions of the place.

The telephonic interests of the city, of course, claim the pre-eminent place in the record of a telephone man. St. John, viewed telephonically, has a telephone exchange owned and operated by the Bell Telephone Company of Canada, which has its headquarters at Montreal. It is the third exchange of that company, in the matter of a subscription list; Montreal and Toronto only taking a higher place.

The managing agent of the company is Ansel Williams, Esq., a gentleman who is eminently fitted for the position, and who had, prior to his appointment by the telephone company, a long and varied experience with the Western Union Telegraph Company. The central office switchboard consists of four fifty-wire sections, one of which was the modern Williams board, one the Post-plug switch, while the other two were of Gilliland manufacture. The entering wires passed from the cupola through cleats, each wire separately to the switchboard.

At the time of my visit, there were some 280 subscribers, of which the greater part were provided with a single line. The signal bell in every case is of the magneto type, and are procured from Williams, Post, and Gilliland.

It has been found that the chief troubles experienced at St. John are those caused by lightning burning out the apparatus, by loose plugs in the switchboards, and by defective contacts in apparatus.

Three young ladies are employed as operators, and are obliged, by the considerable business of the office, to be kept diligently at work. One inspector and a lineman complete the regular force.

The Leclanche battery is chiefly used, some of those now in use being imported from Europe.

The corporation of St. John objects to poles, and consequently much house-top work is necessary. Still there are several very good pole lines; and, if the agent, Mr. Williams, is permitted to have his own way they will be increased.

The wire used is nearly all Nos. 11 and 12, although there are some few lines of No. 10. The reason for employing large wires being a satisfactory one, viz., the dense fogs which so frequently envelop the city. Taking the entire exchange and its service, I heard nothing but good words concerning it while at St. John.

One of the principal annoyances by which Mr. Williams is troubled is the pernicious habit of which it is so hard to break, not Canadian subscribers alone, but those of every kindred, and tribe, and nation, and tongue under heaven, viz., the habit of permitting indiscriminate use of their telephones by non-subscribers.

While at St. John I had the good fortune to see that veteran telegrapher and superintendent, R. T. Clinch, who has the oversight of all the Western Union lines in the maritime provinces, and in the course of an hour's conversation with him, many an old and well-known name was mentioned, from D. H. Craig and F. O. J. Smith to Bogy.

I also met another of the old telegraph magnates, Charles Spear, of the old House line. He is now general agent of the All Rail line between Boston and St. John, and although he has made and lost two fortunes, and is now over sixty years old, he is still hale and hearty, as when he was flying carrier-pigeons with Craig, or running a heavy opposition on the Atlantic coast to the Morse telegraph companies.

One thing more I may note regarding St. John. At that city the river St. John enters the harbor through a narrow gorge, and at that point its bed has a fall of 17 feet; the singular feature of this fall is, however, due to the extraordinary rise and fall of the tide, which is about 60 feet, and this, at high water, causes the wonderful spectacle of a river running over rapids up stream. It is to be regretted that the advertising fiend has not been able to leave even the gorge of the St. John untarnished. His vandalism proclaims itself by the image of an unnatural but colossal Durham bull, painted on the perpendicular rock, with, of course, the accompanying legend, "Buy Blackwell's Durham" adjacent thereto.

The other side is still unadorned, but it is scarcely likely that it will long remain so while she, of the corkscrew curl, Lydia Pinkham, and the St. Jacobs Oil man still range the earth unpunished.

Leaving St. John by the Bay of Fundy steamer for Halifax, the capital of Nova Scotia, via the quaint old town of Annapolis Royal, which, as its name indicates, dates from the time of the royal Anne, and was the ancient capital, I arrived at my destination the same evening, after passing Grand Pre and the basin of Minas, made classical ground by the poem of Evangeline.

Halifax excels in fortifications, so much so that an unfeeling fellow-traveler said that they ought to be called fiftifications.

No less than eleven different defenses guard its sacred precincts. The citadel, garrisoned by two regiments of infantry, and several engineers and artillery companies, crowns a high bluff at the rear of the city, and overlooks the harbor.

The guns by which it is armed can drop a shot or shell four miles out to sea.

At Halifax much of the telegraph construction assumes a European appearance. The poles are heavy and carry but a few wires. Frequent heavy European porcelain insulators are seen; where the lines

terminate, or turn a sharp corner, shackles are used as in England. Here, too, I noticed the Britannia joint for line-wire, which all of us have read about but few of us seen. It is made by laying the two ends of the wire to be joined parallel to one another, first turning about three sixteenths of an inch at each end up; the two parallel ends are then tightly wound with small wire and the whole soldered. It is an excellent joint, when well made, although it takes some time to make it.

Although one would think, from its superior advantages as a seaport, that Halifax would be a first-rate locality for a telephone central office, it is considerably behind St. John. One hundred and forty-two subscribers grace the list, sometimes as many as four being on a line together. All the bells are magneto, and the line wire is No. 12 galvanized iron, which, by the combined action of the damp sea air and the coal smoke, soon gets rusty.

Four sections of switchboard are set up, one of which is Gilliland and three Post. Pole lines run in every direction, and it may almost be said that pole-lines are run where they are unnecessary in Halifax as much as they are not run in St. John.

In both cities there is much provincial sluggishness to contend with; the Canadian burgher, as a rule, looking at his dollar for a long time before he makes up his mind to spend it for a telephone.

There is little to say about Prince Edwards Island, except that there most excellent potatoes, most savory lamb, and most toothsome roastbeef were found; that two dollars a day is the highest priced hotel that can be found; that there is a narrow gauge railroad running from one end of the island to the other, and that, so far as the writer is aware, no telephone has as yet invaded Prince Edward.

In all three provinces much that was interesting and pleasureable was to be seen and noticed, and but few unpleasant features were noticed; the most unpleasant being the great number of flies in the hotel dining-rooms, and the extreme prevalence of a small but agile beast yclept the wicked flea.

Every night, before I lay me down to sleep, etc., it was necessary to indulge to a certain extent in the pleasures of the chase, and the conclusion was at length reached that the *pulex irritans* was the race alluded to by the well-known head-line of the New York *Herald*, "Always with you."

In spite, however, of flies, fleas, and eastern gales, home was safely reached, and your correspondent, with renewed health, has once more started what our old acquaintance Mr. Mantaline was wont to playfully denominate "The demnition grind."

Discoveries of Magnetic Iron.

In sinking an artesian well on the premises of the St. Paul (Minn.) Harvester Works, magnetic effects were noticed. At the depth of 630 feet a hard stratum was struck, and operations continued to be very difficult for a distance down of 40 feet or more. On analysis, the substance of the harder rock proved to be magnetic iron ore, exceedingly rich in quality. A second well has been begun to determine whether the ore deposit underlies any considerable area. There is not a little excitement in the neighborhood, the belief being that St. Paul is destined to be the center of a great iron-producing country.

A dispatch from Yankton, Dakota, dated August 22, says that the second artesian well bored there has developed powerful magnetic properties. It would be interesting to know more of the nature of the rock penetrated. Perhaps there is iron in that place also.

Within the last year there were completed 1,641 miles of railroad in Texas, at an estimated cost for construction and equipment of $44,525,000.

Light on the Rail and at Sea.

An experiment has been made on the Pennslyvania Railway which promises to introduce the electric light to general use on all important passenger trains. The brilliancy of the light adds to the pleasantness of the cars as much as the banishment of combustible material does to their safety. And the use of electric light on steamships has also been successfully tried. The cabin has heretofore been somewhat gloomy, however luxuriously furnished, because of the dimness of its light, but electricity makes it as bright as any parlor, and thus contributes to the cheerfulness of the passengers. The storage system makes it possible to easily provide passenger cars and steamship cabins with a daily supply of electricity for illumination, and there is abundant reason for hope that the use of electric light on the rail and at sea will soon be general.

Tariff Commission Report.

Mr. Moore's review of the tariff legislation of the country is as moderate as it is able. An analysis of the various revenue acts passed since the establishment of the Government is followed by a summary of the demands of the reformers, and the paper concludes with a schedule of a proposed tariff. The arguments of the protectionists are fairly stated and forcibly met. First is the one founded on the "infant industry" plea. Whatever plausibility there may once have been in the contention that American manufactures needed legislative nursing, Mr. Moore shows by a few figures that there is now no ground for it to stand upon. The annual manufactured product of the country is valued at between $500,000,000 and $600,000,000. Woolen fabrics are worth $265,000,000 a year; iron and steel articles, $296,000,000; raw cotton to the amount of nearly 2,000,000 bales a year is manufactured; of chemicals there are $100,000,000 worth. No other country except England manufactures so many goods. To such a statistical situation the term "infant" is preposterously misapplied. Second is the high wages plea. Admitting that they are generally higher here than in Europe, Mr. Moore shows how the difference is neutralized by increased intelligence and the use of labor saving machinery, by which, in some cases, two men can do the work once done by a hundred. But the irrelevance of a protective tariff to the wages question is proved by the case of free-trade England, which pays her workmen nearly if not quite twice as much as those of the Continent of Europe receive, yet is able to compete with the latter, so that her manufactures flourish more prosperously, and her laborers are better cared for. Third is the plea that protection guarantees employment and promotes industrial prosperity. In reply to this Mr. Moore recalls the panic of 1873, which occurred under the highest tariff ever known. As manufacturers have succeeded not because of but rather notwithstanding the heavy tax on raw materials, which is the chief obstacle to their rivalry with Great Britain in the markets of the world, so the excessive tariff has been powerless to stay for a moment the closing of workshops, the stoppage of factories, the failure of business firms, the enforced idleness of workmen, and the movement of an army of tramps across the country.

In showing how the tariff system should be revised, Mr. Moore finds a valuable guide in the six principles adopted by Robert J. Walker, Secretary of the Treasury in 1845: (1.) Collect no more revenue than is needed for the economical expenditures of the Government. (2.) Impose on any article only the duty which will yield the most revenue. (3.) Make below that rate, for good reasons, lower and discriminating duties, or put articles on the free list. (4.) Levy the highest duties on luxuries. (5.) Adopt *ad valorem* instead of minimum and specific duties. (6.) Levy duties in such a way that they shall operate as equally as possible on all classes and sections. In applying these principles to the present needed revision of the tariff, Mr. Moore favors a general reduction of duties on manufactured articles and raw materials, and an enlargement of the free list. He lays especial stress on the complications of the present system under which, by means of specific and compound duties, not only are excessive taxes imposed, but it is often impossible to say what the levy intended by the law really is. The obscure and deceptive terms employed in the tariff acts have led to gross abuses and great injustice. Whatever duty is exacted, whether in the interest of favorite and protected interests, or in conformity with a reasonable revenue theory, should be, above all things, simple and clear. The argument for simplicity is one of the strongest features of his paper.

Of the nine classes of articles embraced in the schedule submitted by him to the Commission, one provides for an increase of duty on sparkling wines, and one substitutes for $2.50 a pound, and 25 per cent. *ad valorem* on tobacco $3.50 a pound. In other classes reductions are provided for—on textiles, on metals, on sugar and molasses, on earthenware and glass, on chemicals, and on sundries, including paper. These duties would secure to the Government an ample revenue.

The Wealth of New York.

The total assessment of real estate in this State is $2,340,335,690, and of personal property $340,921,916. It is believed that the actual value of the real estate is nearly double the former amount, and the actual value of personal property is ten times the latter, so that the aggregate wealth of the State of New York is at least $7,000,000,000. Mr. Mulhall, the English writer, has estimated the wealth of the whole United State States at $49,770,000,000, which he admits to be several millions more than the wealth of Great Britain, and about one-fourth more than the wealth of France.

Cheap Cabs in Philadelphia.

The Philadelphia hack driver will now look upon the Pennsylvania Railroad Company as a personal enemy. With a view of increasing the convenience of the Broad Street Station the company has decided to place at the disposal of its passengers a line of English hansom carriages and four-wheeled cabs at prices never before known in that city. In the hansom two persons may travel a mile and a-half in any direction from the Broad Street Station for twenty-five cents, and in the cabs the same distance may be traveled by four persons for thirty-five cents. The rules governing the driver and relating to the distance and the fare, will be posted up inside the vehicle. In this manner overcharging is made impossible. For the present the new system will be confined to the Broad Street Station, but should the plan meet with sufficient success there is no doubt that the hansom, under some management, will be introduced into other parts of the city.

The railway which it is said the British government intends to build to secure independence of the Suez Canal and punish Count de Lesseps for his impudence, will be about 1,000 miles long, running from Selucia, Persia, a little northwest of Cyprus, along the valley of the Euphrates river to Bussorah or Basra, about 100 miles above the entrance of the stream into the Persian gulf. The cost of the railway would be about $40,000,000 and private capital will be offered to build it if the government will guarantee four per cent. on the amount, or $1,600,

000 annually. Lord Beaconsfield paid $20,400,000 for 176,602 of the 400,000 shares of the Suez Canal, so that the terms for the railway do not seem exorbitant, provided that the new route will shorten the time to India seven days, as alleged, by cutting off the journey around the Arabian peninsula. The chief obstacle the scheme encounters is the objection that it will be difficult to protect a railway running through a sparsely settled country from the attacks of a nomadic people.

The Enormous Size of London.

London has a larger population than many a European States with a sovereign and a parliament. At the census of 1881 the area of metropolitan taxation and police contained 4,764,312 persons. Thus there are in London more than double the number of people in Denmark, in Greenland; nearly three times as many as in Greece; more than eighteen times the population of Montenegro; some thousands more than Portugal, including the Azores and Madeira; nearly treble the population of Servia; more than double that of Bulgaria; three-quarters of a million more than in Holland; more than Sweden or Norway or Switzerland. And yet this splendid capital, the most populous and wealthy city the world has ever seen, is practically without a government.—*From Land.*

Mr. John Pender, M. P., who has just returned from an extended trip over this continent, is quite enthusiastic over what he has seen; but he does not make a secret of his conviction that the country wants more honesty and less speculation on the part of its leading railroad men and financiers.

Of the Western Union Telegraph Company, the study of which is supposed to have been the main object of Mr. Pender's visit to this country, the great English telegraph expert expresses an almost unbounded admiration. He does not seem to be disposed to express any opinion as to the amount of the capitalization of the company or the integrity of its management. But he has no fault to find with its working, and in so far his opinion is most valuable, as the greater part of his life has been spent in the practical business direction of telegraphs, both land and submarine. The telegraphic wants of China, Brazil, or New Zealand are as well known to him as those of Cheapside or Lombard street. Before him are laid in Europe all the latest inventions and improvements in telegraphy, and the intricate questions of high and low tariffs and telegraphic competition are to him thoroughly familiar subjects. Therefore, his statement that the Western Union occupies the first place in the telegraphic world for the promptitude and efficiency of its system is very significant. Mr. Pender is, indeed, so far satisfied with the condition of the American telegraph system that he will probably enter the direction of the Western Union Company. Certain negotiations are now under way, which if completed will lead to his entering that Board. These negotiations look toward a combination of all the transatlantic cables in such a manner that they shall not be at the mercy of Mr. Gould or of any one-man power. In the opinion of Mr. Pender competition in cabling is unlike competition in other business. The public can be better and more cheaply served by one perfect system than by half a dozen imperfect ones. The danger of consolidation is in this case of a purely administrative nature. As long as an honest management can be secured, the monopoly itself presents but little danger, as has been proved by the governmental control of telegraphs in Europe. In this country Mr. Pender thinks that government control would be undesirable, as likely to lead to a great deal of political patronage and corruption. And he significantly said to a friend: "I would rather be President of the Western Union than President of the United States."

As to the market value of Western Union stock, Mr. Pender thinks that the stock is selling too low. He has travelled a good deal through the country, and has done almost all his business by telegraph with a rapidity and accuracy which amazed him. So convinced is he of the great future of the Western Union Company that even should he not become a director of it, he intends to recommend it in England as an excellent investment, and bring his influence to bear in having it quoted on the London Stock Exchange.

It is understood that Mr. Pender has spoken to Mr. Gould in very stong terms concerning the necessity of a perfectly honest and pure management of this great interest. The President of this corporation has in the opinion of Mr. Pender, a mighty power intrusted to him—a power affecting every commercial, social, and political interest, and the nation cannot tolerate any misuse of this power.

A little incident which occurred on the morning of Sir Garnet Wolseley's recent victory shows that Mr. Pender's estimate of the efficiency of the American te'egraph system is not too high. About 10 o'clock on that eventful morning the train stopped at a little station in the Indian Territory. There he received a despatch informing him of the English victory, and was able to telegraph to Sir Garnet, who is an intimate friend of his, that from a land where civilization is only dawning he sent his congratulations to the land of the pyramids. And all this was done in less time than is represented by the difference of hours between the two points.

Edison not Disappointed.

AN ANONYMOUS EXPERT'S UNFAVORABLE OPINION—NEW DANGERS IN ARC LIGHT WIRES.

In the latest number of the *American Gaslight Journal* a correspondent writes that he has met an electrical expert who pronounces the Edison system a failure. He says:

"His information was derived from an electrician just returned from New York, who, as I understand, was summoned to your city for consultation on the subject. My informant stated that Mr. Edison has just met with the greatest disappointment of his life—the complete failure of his attempt to light 2,500 houses with his incandescent lamps by his underground system of wires; but fifty houses could be lighted, the electricity being conveyed away, owing to imperfect insulation. As the insulation was supposed to be perfect, the conclusion is that underground conductors cannot be made to work."

A reporter of the *Evening Post* called this morning upon Major Eaton, of the Edison Electric Company, for some further information as to the matter. Major Eaton said: "The *Gas Light Journal*, of October 2, prints a letter from Washington, without signature, giving the opinion of a third person an eminent electrician—not named, of course—who says that the Edison system is a failure. The correspondent says, that the eminent electrician in question, not named, had been summoned to New York by us for consultation, and that he had discovered that the Edison 'underground conductors cannot be made to work.' These reports are absolutely false. First, no such electrician was ever summoned or even visited us, so far as we know; and, second, our underground conductors, most of which has been in the earth nine months, and have now been in actual use in supplying light without a moment's interruption, day or night since the 4th of September, are entirely satisfactory. Not only is there no unexpected loss of current, but the insulation proves to be even better than expected.

"A peculiarity of this class of attacks on us is tha they generally emanate from 'an eminent electrician' who e names are never given, and in this case the *Gas Light Journal* does not even give an editorial approval to this letter from its correspondent 'X,' who writes from another city to tell us news about what is going on here. Such attacks cannot fail to do us good, because they give us opportunity to show the real state of the case.

"The most successful part of our work is the system of underground conductors. The mains are laid in lengths of twenty feet, each subjected at the factory to a test of resistance. The theoretical loss of current in our fourteen miles of conductors amounts to less than half of one-hundredth of a horse power, or about 1-7000 of the current needed for one lamp. If the whole of Manhattan Island was supplied with light through conductors as perfect as those we have laid down town, the loss through leakage would not amount to current enough to run one lamp.

"We are now running 1,450 lamps from our station in Pearl street and have found no trouble except a purely mechanical one connected with the engines, which has now been overcome. We have no reason to believe that the system will not be the great success has been hoped."

Electrical Engineering.

We beg to draw tho attention of our readers to the following notice: Prof. W. Grylls Adams, F. R. S., will deliver a course of lectures on electricity at King's College, London, during the ensuing session. A course of practical work in electrical testing and measurement, with especial reference to electrical engineering, will also be carried on under his direction in the Wheatstone Laboratory. The lectures will be given once a week, on Thursday at 2 P. M., and the laboratory will be open daily (Saturday excepted), from 1 to 4. Fee, including both lectures and laboratory work, £8 8s. for one term, or £21 for three terms. The work will begin on Monday, Oct. 9th, 1882. Further particulars may be obtained on direct application to Prof. Adams.—*London Electrical Review.*

New Corporations.

ALBANY, October 9.—The following organizations were incorporated to-day:

The Star Electric-Light and Power Company of the United States; capital, $300,000. The principal office is in New York City.

The Western States Electric Storage Company of New York; capital, $[illegible]00,000.

New Telegraphic Facilities.

The Mutual Union Telegraph Company has invited merchants and others to test a new method of doing business by telegraph which may prove to be more convenient and more effective than by sending ordinary despatches. To illustrate the scheme: Suppose that A in New York finds in the course of the day that he wishes to settle a certain matter with B, of Chicago. He sends word to the Mutual Union office to send to B, asking if he can be in the Chicago office of the Mutual Union at say 4 o'clock, in order to talk with A. If the answer is "Yes," then the two meet at 4 o'clock, one in Chicago and the other in New York, and two operators ask and answer whatever questions and answers are sent over the wire. In this way there will be no opportunity for delays or misunderstandings. The cost will not be greater than for the same amount of telegraphic matter sent in the ordinary way.

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We are glad to call to the notice of our readers from time to time the rapid strides which the telephone business is making in all directions, and in every country, it seems to have been generally adopted with an alacrity such as has never been experienced in connection with the introduction of other inventions. We note the following company now doing business in the West Indies

The West India Telegraph and Telephone Company, limited, was organized July 20th, 1882, and controls all the rights for Telephones aud Telephone Exchanges, Patents of the American Bell Telephone Company, Continental Telephone Company, and the Mexican National Bell Telephone Company, for the Island of Jamaica, San Domingo, Hayti, and Porto Rico, and others.

The rights and franchises of the above Company have been fully paid up, and ample capital is provided for the development of the company's business, for building and operating the exchanges in cities and towns, and on Plantations of the Islands.

The Company has an arrangement whereby they *purchase* their Telephones and Transmitters, thereby saving the enormous expense of paying royalties.

Their Superintendent or Manager is now on the field of operations; has secured valuable advantages in the way of subsidies and free imports of materials, etc., and absolute control of the business throughout the Islands, from the Municipal and State authorities, so there is no fear of opposition. The Company's position is unquestionably a strong one, and by the energetic and thorough manner in which they have undertaken the work, it is fair to suppose that within the next two years they will have from two to three thousand Telephones in rental.

There is an Exchange started in Havana, Cuba, (the Tropical Telephone Company, limited), though only in operation eight months, they have now over six hundred subscribers at a rental of $8.50 per month in gold, and expect to have one thousand in two years.

The Island of San Domingo is 25,000 square miles, 60 miles from Porto Rico, and 70 miles from Cuba. It has over 1,000 sugar plantations, 3,000 coffee plantations, 1,000 cotton plantations, 3,000 indigo plantations, 1,000 cocoa nut plantations, on which they will get a great many private lines contracts, and also connect them with cities and towns. Among the principal cities and towns in San Domingo are: Port au Prince, Azua, Santiago, San Domingo, Seybo, Samana, Mocha, Puerto Plata, Banica, San Juan, Pontosi, Soco, Macoris and many other small towns.

General Grant said in his speech on the question of annexation of San Domingo: "It is the richest territory under the sun, capable of supporting a population of ten millions of people in luxury. Probably no spot on earth, taking it altogether, and looking at it in its natural aspects, can be found more lovely, and it is safe to say, probably no extent of territory the world over, contains within itself, under proper auspices, so many elements of prosperity and worldly success, as the Island of San Domingo."

Some of the principal cities and towns in Jamacia are: Kingston, Spanish Town, Falmouth, St. Amas, Port Antonio, Port Royal, Lacivia; and in Porto Rico, San Juan, Arecibo, Cadlias, Ponce, Giayama and others.

Telephone Litigation.

In our last edition appeared the following typographical error:

The case of the Canadian Telephone Co. *vs.* The Toronto Electric Despatch Co. was heard this week in the Chancery Division of the High Court of Justice, at Osgoode Hall, a perpetual injunction being granted against the defendants, thus establishing invalidity of the Bell Telephone patent, already sustained by the Quebec Courts in a test case.

The above should have read "thus establishing the *validity* of the Bell Telephone patent already sustained by the Quebec Courts in a test case."

Our esteemed and enterprising fellow-citizen, Mr. W. R. Warren, has just organized a new electric company, in London (similar to the one which we have had occasion to speak of here, which has been doing such an excellent business for a year past), we can safely predict its success, as his remarkable judgment and energy in pushing his enterprises insure such a result.

Mr. Albert J. Driver, inspector and manager for a number of years in the Gold and Stock Telegraph Company in New York, and later in the Metropolitan Telephone Company, has been in the service of the Mexican Telegraph Company since March, 1881. He is now manager of that company's new office at Galveston, Texas. The Gulf cable from Vera Cruz, Mexico, via Brownsville, ends now at Galve-ton instead of at Brownsville, as formerly, and the Brownsville office was closed last June.

Mr. A. Hanford, manager until February 1st, 1881, of the Bell and the Metropolitan Telephone Exchange, at Brooklyn, is now located at Zacatecas, in the service of the Central Telephone Company of Mexico. Mr. Hanford is an excellent Spanish scholar, and well posted in his business.

The Buffalo Telephone and Telegraph Company have just completed a new line from Rochester to Buffalo, via Lockport and Albion, N. Y.

We are glad to note the merited promotion of Mr. F. C. Timpson to Assistant General-Manager of the Empire State Telephone and Telegraph Company. President Storke, of that company, is not slow in recognizing and rewarding the fidelity and ability of his assistants. Mr. Timpson's headquarters are at Auburn, N. Y.

The Hudson River Telephone Co. have started telephone exchanges at Cold Spring and Garrisons-on-Hudson.

A telephone exchange has been opened at Walden, N. Y., and is connected by trunk line with the Newburgh, Montgomery, Goshen, Middletown and Port Jervis exchanges, and will soon have a connection with Poughkeepsie and Fishkill, via Hamburgh Cable.

The New Southern Cables.

The establishment of telegraphic communication by submarine cables between the United States, Mexico, Central and South America has been accomplished. The cables of the Mexican Telegraph Company, starting from Galveston, Texas, reach Vera Cruz via Tampico, at which point the cables of the Central and South American Telegraph Company extend to the Isthmus of Tehuantepec, thence by land line to the Pacific, thence by cables to Lima, in Peru, where they connect with the cables of the West Coast Telegraph Company now laid to Valparaiso, Chili. These lines comprise 5,610 miles of submarine cable and 567 miles of land line, and connect exclusively with 20,000 miles of wire in Mexico, Central and South America. The commercial and political importance of these lines is evidenced from the fact that they bring into communication with the United States and Europe a population estimated at 35,000,000, transacting an annual commerce of over $600,000,000.

Our Mexican Letter.

NO. 2.

ZACATECAS, E. N. MEXICO.

Editor and Proprietor "Review of the Telegraph and Telephone,"

DEAR SIR,—There are four hundred and thirty telegraph offices in the Republic of Mexico. The telegraph and telephone lines are as follows, viz.:

General Government.....	11,664	kilometers.
State Governments.....	1,884	"
Various companies.....	4,300	"
Private persons and firms.....	1,000	"
Coast and cable.....	900	"
	19,748	"
Telephone lines.....	692	"
Total.....	20,440	"

Or 12,693 English miles. The railroad wires are increasing rapidly, and the telephone wires will double in number within one month.

The Government lines and the Mexican Central Railway Company use the Mexican telegraph alphabet of Juan de la Granja. It is like the Morse, except the letters C . . . , K — . . . — , N (ainyay, not N) . — . — O — . — , S . — — , W . . — . . — , and Z . — . . . , the punctuation marks, except the period, and the accent marks, these last being very important in Spanish. The Mexico and Vera Cruz Railway uses the international alphabet, and the Palmer-Sullivan Road the Morse.

Five hundred ohm French relays are in general use, and Daniell's batteries, and Government regulations require the use of the old-time register and paper. A revenue tax of one cent per message is in force, and a one-cent stamp must be affixed to every message received for transmission, the stamp being paid for by the sender. In this country, whose people in general are more polite than even the proverbially polite Frenchman, the telegraph and Government officials excel in politeness.

American telegraph instruments are steadily replacing all others, and there are now at the Government telegraph headquarters in Mexico—the office of the director general – forty sets of Stearns' differential duplex, which are about to be put in use on Government lines. The first test of these was made by Señor Saturnino Yslas, Superintendent of the Mexico and Vera Cruz Railway Telegraphs, an electrician of great ability, and member of the London Society of Engineers and Electricians. This was a laboratory test, and was entirely successful. The first set put into use was worked between Mexico and Orizaba, 291 kilometers, under the direction of the same gentleman, with perfect success. This was in June last, and was the first use of the duplex in this Republic.

Since I wrote you, I have traveled from Guanajuato to Silao, to Querétaro, to Mexico (where nearly four hundred subscribers have been obtained), back to Querétaro, to San Luis Potosi, to Zacatecas, to Aguas Calientes, to Leon, to Lagos, and shall return *via* Querétaro and Silao to Guanajuato and prepare for a new tour, to open offices in the smaller cities.

In this country the telephone is now an assured success. The cities of San Luis Potosi and Zacatecas are perhaps the most promising (excepting, of course, the City of Mexico). In San Luis Potosi wires could not be built fast enough to meet the demand, and there, as in Zacatecas and elsewhere, they have the telephone fever. The vocal and instrumental music, at a grand concert given at the Teatro Alarcon in San Luis Potosi, was very clearly and distinctly heard by wire by all the subscribers to the exchange there, and created great interest in the telephone. Since August 14, forty-six wires have been built for that exchange, and several long and valuable private lines projected. Manager at San Luis, Mr. Comercial Jones.

At Guanajuato, the exchange under the management of Assistant General-Manager Hobart, was in thriving condition, and some of Mr. Hobart's new pole lines attracted much favorable comment from telegraph men. Of these lines, one is to Silao, fifteen miles, six wires; one to the "Cata" mine, three wires; and one to the "Valenciana." Several other long lines are under advisement or being built. In Guanajuato, as elsewhere, the Government offices, custom-houses, post-offices, &c., are connected with the exchange, and this class of service is found to be very valuable, both to the subscribers and to the officials.

At Zacatecas we are 8,200 feet up in the air, but find no difficulty in breathing. At similar altitudes in the States great discomfort is felt. At Zacatecas are some of the most wonderfully productive of silver mines, and all worked under the old Spanish "patio" process, the only process used in Mexico. The ore, after being ground under the "Chilian wheel," is reduced under "arrastras"—large flat stones, revolved in a vat by mule power. In these the ore is reduced to an impalpable powder, then turned into the patio or yard, where, after the addition of the proper proportions of salt, quicksilver, and sulphate of copper, men and mules are turned into the patio, and they mix the mass together by tramping about in it. The use of the salt is to chloridize the ore—to change the sulphates to chlorides, so that the quicksilver may act on them.

The sulphate of copper cleans the ores, removes the sulphides and the oxidation. The quicksilver makes an amalgam with the native silver and thus collects it.

"Magistral"—a copper ore with iron in it, and from which the impurities have been "roasted" out—is used by many instead of sulphate of copper.

The hoofs of the horses suffer terribly in the patio, on account of the action of the sulphate upon the ammonia in the hoof, and the horses are worn out and die in about two years. The feet of the men suffer but little.

From the patio, after washing and separating and straining through canvas bags, the quicksilver is driven off by heat and condensed, leaving the silver behind. This is melted down in crucibles into bricks, and is then ready for the mint.

The writer went down the shaft of the San Martin mine, near this city, step by step, on a long, slender notched stick, called by courtesy a ladder, preceded by a miner with a torch, and after examination was drawn up by a "malacate," a large drum, on which a cable is wound up in ascending and unwound in descending, if one goes down by that mode. We came up seated in little swings called "hondas." The general appearance of a mine, and miners at work, has suggested to many the probable appearance of "the lower regions." I am not surprised. New and improved machinery was being fitted up by Mr. G. A. Colby; and this mine, which Superintendent Prevost informs me once paid four million dollars in four years, will soon be in full blast again.

On three occasions we have worked from here to San Luis Potosi by telephone. Distance, 182 miles. Government and telegraph officials, including Señor Don Pedro Diez Gutierrez, Governor of the State of San Luis Potosi, were present and took part in the conversation. Instrumental music and singing were transmitted. In every respect the results were excellent, and the tests will be repeated this week, when we expect the Governors of the two States to talk together. Manager at Zacatecas, Señor José M. Ramos.

Did you ever hear of oysters growing on trees? We have this novelty at Mazatlan, in the State of Sinaloa, on the Pacific. The oysters—brought in with the flood tide—attach themselves to the leaves and branches of the low trees and shrubbery along the shore, and are left clinging there when the tide ebbs. They are taken in thousands, at low tide, by the natives.

Here is another fact not generally known, and it is a fact, vouched for by several who have seen it, including a former superintendent in the district referred to. On the route between San Diego and Fort Yuma, California, a distance of two hundred miles, there is an immense sandy desert through which the lines of the Signal Service pass. At times, under a high wind, the dry sand is blown in heaps around the twenty-four foot poles, completely hiding them from sight. The sand is continually shifting, and in a section of the desert where to-day the poles are covered, to-morrow they are in full view and other poles are hidden. The sand is very dry, and except in wet weather, causes no appreciable escape, but during winter storms service remains interrupted for weeks at a time, and those interested were considering the substitution of insulated wires or abandoning the route. The same action as to the sand occurs in several districts in Mexico, but in none where poles are set.

On the 16th of this month, "the day we celebrate," is the Mexican Fourth of July, the anniversary of Mexican independence from Spanish rule. At midnight, on the 15th of September, 1810, Miguel Hidalgo y Costilla—"the Washington of Mexico"—in the little city of Dolores, in the State of Guanajuato, proclaimed Mexican freedom, and thereafter fought bravely and successfully in its defense. He was a priest, and a man of fine presence and scholarly attainments. He caused the abolition of slavery and of the stamp tax and paying of tribute. He died in 1811. The formal declaration of independence was made November 16th, 1813, by the first Mexican Congress, which assembled two days previous.

Railroad building progresses with great rapidity, the popularity of the roads increasing from day to day as their value is felt.

The writer received a few days since a letter from Mr. W. E. Huntington, of your city. Mr. Huntington is establishing the exchange at the City of Puebla, on a branch of the Mexico & Vera Cruz Railway, and is well satisfied with the prospect.

The exchange at Guadalajara is under the management of Mr. C. H. Dubois, formerly of New York, and reports progress. The Ayuntamiento of that city have just closed a twelve year contract with an American company, and by March 1st, 1883, Guadalajara will be lighted by gas.

In Zacatecas new interest in salt mines has sprung up, and is attracting capital.

The mail service between the two Republics improves steadily, and at this time letters from cities away from the railroads, as far south as Guanajuato, are sent to the States at any time via Laredo, instead of waiting, as formerly, for the fortnightly steamer from Vera Cruz. Time by this route: New York to San Luis Potosi, ten days; Zacatecas, twelve; Guanajuato, thirteen; City of Mexico, fourteen. An able postal commission has been appointed by the General Government, and useful reforms, including a reduction of local postage, now 25 cents between cities, are in progress.

Under the favorable banking laws, many new banks of issue and branches of old banks are being established in various cities.

After November 1st, under laws recently enacted, the 5 per cent. duty on silver exported from this country will be removed. There will then be nothing to prevent my sending it in large quantities to you and other friends.

Mr. Thomas J. Barry, of Kentucky, has been appointed and confirmed as United States Consul at San Luis Potosi. He was for many years in the telegraph service in Texas, and in the United States

Signal Service. Mr. Barry is popular and well posted, and a friend of progress, and the appointment is well received.

Mr. Jno. D. Haines, of New York, and Mrs. Haines, are expected to arrive in Mexico by the Alexandre Line steamer, leaving New York September 14th. Mr. Haines is largely interested in various telephone companies in this Republic.

I quote you, in closing, an American joke and an Irish-Mexican joke. I heard them on the railroad between Mexico and Querétaro:

American.—*Scene in a railroad car:*

First Passenger: What's the name of the conductor on this train?

Second Passenger: Glass—Mr. Glass.

First Passenger: Oh, impossible!

Second Passenger: Why impossible?

First Passenger: Why, everybody knows that glass is a *non-conductor*.

And here is the Irish-Mexican joke:

The Mexican word for rope is "mecate" (may-cah tay), and one of the railroad men answered when asked how he liked Mexico: "It's a quare counthry, thin. Sure they tie up their hogs an' let loose their dogs; an' they call an ould rope McCarty."

Hope to hear from you soon (via Laredo, except just before the steamer sails). Have had but little leisure, and am compelled to write hurriedly.

I am your friend, G. L. W.

Zacatecas, E. U. M., Sept. 19th, 1882.

Ocean Cables.

HOW ATLANTIC WIRES ARE LAID, REPAIRED, AND WORKED — SIGHTS IN THE OPERATING ROOM AT HEART'S CONTENT, NEWFOUNDLAND—METHODS OF SENDING AND RECEIVING MESSAGES.

HEART'S CONTENT, NEWFOUNDLAND.

A little more than twenty-four years have gone by since the laying of the first ocean cable and the transmission of a message woke the country to wild enthusiasm and demonstrated the possibility of wedding the two continents in electric bonds. The union was but a momentary and sentimental one. Almost on the day that the first message passed the grim news spread that the cable had broken. In those days there were not wanting men of repute in the scientific world who predicted that the obstacles to ocean cable laying were insuperable. The attrition of rocks and sand, the corrosion by the ocean brine, the necessary flaws in so long a span of cable, were urged stoutly as bars to an enterprise which might stir international sentiment, but would never, as was asserted, be a practical reality. At this distance, and in the vivid light of things done, it is curious to recall the delusive fears of that skeptical day—to find five years afterward a new cable laid, the old one repaired, and success not exciting a tithe of the enthusiasm created by the earlier failure; to be brought face to foce, as a familiar and every-day fact, with the daily transmission of hundreds of sub-marine messages; to know that cables are laid and repaired with as much precision and certainty as the prosaic land-wire, and that stockholders look to them for dividends with as much confidence as to the railroad, the factory, or the bank; and, finally, remembering the later marvels of electrical discovery, to look onward to an era when even the telegraph and cable may, perhaps, become archaic and obsolete.

HEART'S CONTENT.

Here on the rugged shores of Trinity Bay is Heart's Content, the great cable station of the Anglo-American Company. The bay, now famous in the annals of ocean telegraphy, is a body of water about as large as Long Island Sound, cutting straight into the bleak shores of Newfoundland, and, like all those shores, rocky, sheer, and fatal to the mariner whose craft strikes them during high seas. In each of the little harbors of the bay is a small group of fishing huts, and Heart's Content itself scarcely deserves the title of a village. During the winter the large bay is fairly buried in drift ice, on which teams can drive across; in the spring towering icebergs, loosed from their arctic moorings, drift in, and, but for the vast depth of water they draw, would dash against the shore. As it is, they strike the bottom in deep water, making a mighty stir as they roll in the turbid tide, until, unbalanced by the heat of the sun, which melts them above, they fall over with a crash. Within a week, in the month of August, I have seen in the bay one of these stately visitors, the survivor of a great company of bergs that entered the waters last spring. The telegraphers at their distant station here have isolation with a vengeance. On the barren road to Carbonear, the nearest settlement of any size for twelve miles, one finds only a single house, and that the dwelling of a telegraph repairer. In the winter the road is almost closed by deep snow, and poles nearly as high as those of the telegraph have to be set up to mark out the path. To St. John's, forty miles further on, also, is a rough journey, and altogether, the telegraphers, surrounded only by fishing huts and hemmed in by their rocky walls, have a dreary life of routine that almost makes the name of Hear's Content one of derision. In all, the cable station here gives employment to about thirty persons. The operators, picked men in their calling, are most courteous and intelligent gentlemen. The Anglo-American Company has to pay them well, as it ought, for their life of seclusion. They receive $1,500 a year besides a handsome dormitory, and their annual vacation of a month each year, can, at the option of the operators, be "lumped" into three months every three years so as to enable them to revisit their English homes. Many of them have families, and one of them has been in the service of the company at Heart's Content, for sixteen years. But at best, shut out from the world and environed during the winter by deep ice and snows, existence must be terribly dreary in this remote corner where science and civilization touch one of nature's roughest outposts.

IN THE OPERATING ROOM.

A spacious building, looming up like a colossus over the low dwellings of the fishermen, contains the apparatus by which the cable messages are sent or received. Within is a glittering medley of brass-works, keys and key-boards, wheels, jars, wires, and general telegraphic paraphernalia. The air hums with the click of instruments, and the room on a working day is a hive of industry. First to attract the eye, and foremost as to interest, is the "recorder," the instrument that receives the message after its instant journey under seventeen hundred miles of water. The recorder is a horseshoe magnet, electrified by the usual circles of fine wire, and attracting a small metallic coil. The coil is hung between the magnetic poles, and by a light lever and a thread almost as fine as the strand of a cobweb, is connected with a delicate syphon hung in a little reservoir of ink. The ink is elecrified, so as to produce a repulsion of the particles, making it flow more readily through the syphon, which outside is about the size of a darning-needle, and the interior tube scarcely larger than a hair. The lower end of the syphon rests against a paper tape playing perpendicularly through rollers. The whole machine is almost of gossamer fineness and flexibility, so as to minimize the electric strain necessary for working the cable.

Superseded by the recorder, but an instrument still used in emergencies, is the reflector. It is an electric adaptation of reflected light not much unlike the process by which a child amuses itself when darting round a room the ray from a hand-mirror. As the slightest turn of the mirror will throw the reflection through a great arc, so in the telegraphic instrument, a distant movement of a ray follows from a little vibration of a mirror and corresponding economy of electric strain The mirror is set in a metallic case, which, when electrified positively or negatively, gives a double motion. A bright lamp shining through a slit makes an upright bar of light which is reflected into a box a yard away and plays to one side or the other of a line in the center. Looking into the box the layman sees only a flash darting to right and left. But these double flashes give the dot and dash which in various combinations are all the telegrapher needs to construct his alphabet. The reflector is less intricate than the recorder, but as it could not register the message it was discarded. The motive of lessening the strain on the cable, which prompts the use of both the recorder and the reflector with their gossamer devices, is also the underlying cause of the establishment of the station at Heart's Content. To pass the current directly to the land wires seemed an undue risk. Hence, Heart's Content is made the resting-place of the messages over three cables, and there they are transferred to land wires and forwarded to their destination in the usual telegraphic way. In addition to the three cables landed at Heart's Content, the Anglo-American Company operate the French cable running from Brest, France, to the island of St. Pierre, south of Newfoundland, and thence to the coast of the United States.

LOCATING A FAULT.

The work of locating a break or flaw in the cable—a process seemingly so abstruse—is, with the present improved instruments, comparatively quick and easy. Discarding technicalities, we may ssy briefly that the whole electric potency of the cable when fully charged is known, and the same can be quickly ascertained of the two parts created by a break. A delicate machine adjusted to the nicest fractions discloses the electric units or "ohms" in each part, and as the number of ohms to the mile is known, the miles and fractions of miles in both parts can be found out at each end of the cable. In the case of a clean break the locating of it takes about fifteen minutes. But a very angular break, or a flaw, makes perturbations of the measurement which it now and then takes some hours to rectify. The usual cause of breaks or flaws is attrition on rocks or sand; and sometimes a break in very deep water indicates that sea currents of considerable force prevail there, contrary to the generally-accepted theory that deep-sea waters are always placid. Most of the fractures, however, take place in shallows, and many of them are due to the dragging anchors of the fisher craft. In two or three instances the cables have evidently been snapped by enraged or hungry fish.

Telegraphic and Telephonic Notes.

On the first of October the Inter-State Telephone Co. and the Connecticut Telephone Co., was consolidated under the name of The Southern New England Telephone Co., with a capital of eight hundred thousand dollars.

Yesterday the Winsted plant, controlled by Messrs. Beach & Hunt, was purchased by the Southern New England Telephone Co.

Said company now control all of the State of Connecticut, together with the Inter-State rights of Rhode Island, Providence, Boston and Worcester Lines.

The New York Electrical Society held its regular meeting at its rooms corner of Liberty and Greenwich streets last Friday evening. The attendance was quite large and considerable disappointment experienced at the receipt of a message from David Brooks, Esq., announcing his inability to be present from indisposition. The routine business having been disposed of, Professor Van der Weyde gave a very clea.

and brief description of the various ways in which electricity is developed, including allusions to some very interesting static and inductive effects. The Executive Board of the Society has been strengthened by the addition of A B. Chandler, Esq., President of the Fuller Electrical Co., and Geo. M. Phelps, Jr., Superintendent Western Electric Manufacturing Co. An effort is being made to secure the use of the elevator to the Society's rooms.

Western Union.

THE ANNUAL REPORT OF THE COMPANY MADE TO-DAY AND ELECTION OF DIRECTORS.

NEW YORK, Oct. 12th, 1882.

The annual meeting of the directors of the Western Union Telegraph Company was held in the directors' room of the company's building this afternoon. There was present a representative gathering of gentlemen, the attendance being very large. The report of the company for the past year was read, and made a very favorable showing. An election for a Board of Directors was held, over 650,000 shares being voted on. The following gentlemen were elected:

Norvin Green,	Cyrus W. Field,
Thomas T. Eckert,	John Pender, M. P.,
Edwin D. Morgan,	Henry Weaver,
John Van Horne,	Percy R. Pyne,
Augustus Schell,	Robert Lenox Kennedy,
Harrison Durkee,	Hugh J. Jewett,
Jay Gould,	J. Pierpont Morgan,
Russell Sage,	Frederick L. Arrico,
Alonzo B. Cornell,	Edwin D. Worcester,
Sidney Dillon,	William D. Bishop,
C. P. Huntington,	Amasa Stone,
George B. Roberts,	George J. Gould,
Zalmon G. Simmons,	Chauncey M. Depew,
Samuel Sloan,	James W. Clendenin,
Erastus Wiman,	George F. Baker.

The following gentlemen were elected inspectors of election:

Clarence Cary, Francis P. Burke,
George F. Fagan.

Messrs. Pender & Weaver represent important English interests, and their presence in the board is likely to add to the strength of the company.

We extract the following remarks by President Green concerning the report, which we shall publish in full in our next edition:

"The stockholders may be congratulated on the very handsome returns made for the past year. Referring to the customary table exhibiting the operations of the company for sixteen years, especial attention is called to the increase shown during the past five years; and especially the gratifying exhibit of an increase during the last year over the year preceding of $3,053,355.91 in gross revenues, and of $1,477,429.83 in the net profits realized.

The earnings of the Gold and Stock Telegraph Company and the International Ocean Telegraph Company for six months of the year, and of the two American cables for one month, which were not included in the estimates when the last annual report was made, have contributed to make the gross receipts some sixteen hundred thousand dollars more than was estimated; while the expenses of those new departments and the payment of rentals guaranteed have also largely increased the expenditures, making the net profits, however, $618,070 more than was estimated.

As the revenues of these departments will hereafter be permanently included in the earnings of this company, the gross receipts for the ensuing year are estimated at nineteen millions, and the net profits at eight millions of dollars.

Respectfully submitted.
NORVIN GREEN, President.

A trial has been made of a Siemens and Halske's telephone, laid under ground between Cologne and Elberfeld, with very favorable results, every word being distinct.

The retirement of Dr. Norvin Green from the presidency of the Western Union Telegraph Company has not been an unexpected event to those familiar with his condition of health during the last few years, but there is none the less regret that one of the most efficient administrators of telegraph affairs the world has ever had is to abandon the scenes of business in which he has been so conspicuous a figure. When William Orton died, a giant was removed from the telegraph world, and the retirement of Dr. Green takes another. He is wiser than his predecessor in that he lays aside the heavy cares of active business in time to prevent the complete breaking down of his health, and he is likely to have many years in which to enjoy a leisurely affluence.

Telegraphing in South America.

PANAMA.—The lines of the Central and South American Telegraph Company will be opened for public business on Monday, Oct. 2, as far South as Guayaquil, Ecuador. It is expected that the lines to Callao and Valparaiso will be opened within a week thereafter. Due notice will be given thereof.

New Telegraph Companies.

TWO NEW CORPORATIONS WITH A CAPITAL OF $250,000.

ALBANY, Oct. 2.—The following companies were incorporated to-day: The Commercial Telegram Company: capital, $50,000. The lines of the company are to run from New York to different cities in this and other States. The Mexican Northern Telegraph and Telephone Company of New York; capital, $200,000. Its line is to run from New York through the State of New Jersey, and thence in a southwesterly direction to the city of Laredo, in the Republic of Mexico, and to other cities in Mexico.

Miss Hope Edwards in her *Eau de Nile* describes how business is done in Egypt. One incident will serve to show to what an extreme length the Eastern custom of offering refreshments during any business transaction is carried in upper Egypt: "When St. L. went to the post office to send a telegram he was also immediately accommodated with a chair and a cup of coffee, the clerk taking another, and so they went leisurely to work."

Telegraphic Communication with Peru.

CALLAO, PERU, Oct. 5—9 A.M.—Telegraphic communication with the United States and Europe, via the lines of the Central and South American Telegraph Company, was established this morning.

The Telegraph Business in Holland.

BY C. W. H. VERSTER.

The systems of telegraphy adopted in the Netherlands are the Morse, using instruments of Digney, and Siemens, and Halske, the Hughes, and the quadruplex of Meyer. The Wheatstone punch instrument was used a short time, but worked unsatisfactorily. The Morse instruments all register the messages upon paper; consequently, reading by sound is almost unknown. In this respect, the telegraph here is yet in its infancy. A man who is able to send twenty words a minute is considered a good operator.

The central telegraph station in Amsterdam is the busiest in Holland. More than two hundred and fifty gentlemen and lady operators and clerks are there in service. The Siemens electric light has been introduced, and we hear with pleasure that the system is working well. There are ten branch offices.

The Merchants' Exchange has direct lines to the exchanges at Rotterdam, Brussels and Berlin. A submarine cable of four wires connects Amsterdam with Lon don, *via* Haarlem and Zandvoort, the end station of the electric tramway.

In Rotterdam, besides the main office and three branch stations, the Government Telegraph School is also located here. Competitors, after passing an examination, receive instruction in all branches of the science. These lessons continue eleven months, and are given by Mr. G. Welter, of Rotterdam. About twenty-five operators are appointed every year, and enter into Government service. (We are happy to announce that all the pupils of Mr. Welter of this year, in number twenty-three, have passed their examinations with favorable results.)

The Director of the Telegraph is Mr. C. Staring; the Chief Technical Inspector, Mr. J. M. Collette. Both reside in the Hague.

The central office system of telephonic communication is in the hands of a private company—the Nederlandsche Bell-Telephoon Maatschappy, but the Government has introduced telephones into many small villages, connecting them with telegraph stations in the larger towns.

In Amsterdam the subscribers of the above-mentioned company are enabled to send and receive their telegrams by telephone.

For the naval time-signals the following system is in use: The Astronomical Observatory in Leyden is connected with the telegraph station in that town. At 9 A. M. the line of the Observatory is switched on to a wire from Amsterdam to Rotterdam, communicating in one direction with the naval station at the Helder, and in the other with Hellevoetsluis and Vlissingen. The resistance of both branches is made the same by putting a rheostat into circuit, so the current splits—on chalf going one way and one half the other.

Semaphore stations are upon the islands of Texel and Vlieland, and at Ymuiden—a village near Amsterdam, at the end of the North Sea Canal. The well-known code for the international flag signals is edited and printed by the firm of Nygh & Sons, at Rotterdam.

Rotterdam, Oct 2, 1882.

The report of the consolidation of the Chicago offices of the Western Union and the Mutual Union Telegraph Companies, which obtained considerable currency yesterday, was completely exploded to-day by the positive denials of the officers of the companies referred to.

NEW YORK, October 3, 1882.

GEO. WORTHINGTON, EDITOR, &c.

Dear Sir,—Was not the first experiments of the Morse telegraph tried at Speedwell, N. J.? Also, will you please state who furnished the money for Morse to experiment with? Answer in your next issue. A SUBSCRIBER.

In answer to "A Subscriber" we extract the following from "The Telegraph in America," by James D. Reid:

"The exhibition of this crude machine on the 2d of Sept., 1837, in the presence of Prof. Daubeny of the English Oxford University, Prof. Torrey, Mr. Alfred Vail and others, so demonstrated to all present the practibility of the invention, that it resulted in enlisting the means, the mechanical skill and zeal of Mr. Alfred Vail and his brother George, who, after thorough inquiry, furnished Mr. Morse with the means, material and labor for an experiment on a

larger scale, and finally led to placing the machinery in condition for public inspection and use.

"Prior to that period (the autumn of 1837) Mr. Morse was so poor that he wrote to a friend, 'So straitened were my circumstances that in order to save to carry out my invention and to economize my scanty means, I had for months lodged and eaten in my studio, procuring my food in small quantities from some grocery and preparing it myself.'"

"The first exhibition of the Morse Telegraph was in Mr. Morse's room in the New York University, Washington Square, New York, and the larger experiment was as noted at the Vail works in Speedwell, N. J. After that experiment the Vail brothers provided Morse capital, and Prof. Morse made over to Mr. Alfred Vail one-third interest in the patent."

The New Telephone Exchange at Port Jervis, N. Y., was opened last week with 51 subscribers.

Defective Line-Wire Joints.

An esteemed correspondent sends the following:

TROUBLES IN THE TELEPHONE.

Many of the troubles which seem to occur after some time to good working telephones are due to the bad connection at the window. The copper of the "G. P." wire is tied around the steel wire. This steel wire is covered with zinc, and as it is well known that zinc and copper form an element (especially when they become wet) a bad connection is the result. Is there a good way to prevent that? This question is of some importance for the following reason: Most times the connection from the inside of the tower to the central office frame is made with covered wire to prevent crosses there: according to this a telephone line has ordinarily twice that connection of copper and zinc. In the first three or four months it will be all right, but when the splices are much exposed to moist air, it will happen after longer or shorter time that the wire is eaten right off. V.

It is indisputable that as our correspondent states, an ordinary joint between a steel or iron wire, especially when zinc-covered, and a copper wire, forms when moistened a voltaic cell or couple; resulting first, in an increased resistance in the line circuit, owing to the deposition of salts of the metals involved; and second, the complete decomposition of the metals, and consequent disconnection.

The only radical remedy for the trouble is to make the joint homogeneous, by soldering, using rosin as a flux; this must necessarily prevent all galvanic action.

For the lower connection of the intermediate wire with the switchboard wire we prefer to use a binding screw.

Telephone Dummy.

Mr. C. R. Jennison, of Boston, has invented and patented a new piece of mechanism, designated a "Telephone Dummy," which appears to be the best thing of the kind ever patented. It consists in the arragement, with suitable mechanism, of telephone instruments on a slide, moving in ways so that the telephone may be moved from one room or floor in a building to another by simply moving the slide, and may be used at any given point. The dummy may extend perpendicularly, and be used for raising or lowering the telephone from floor to floor, or may extend horizontaily from one apartment to another on the same floor. There are two parallel rods or tubes, between which the slide moves, the slide being provided with guiding-grooves on either side, which allow its edges to partly embrace the rods. The slide is provided with a rope or cord which passes over a pulley above and is weighted, the rope serving as a convenient means of raising or lowering the slide. The battery-jars are conveniently placed in a closet at the bottom of the dummy-well. The battery wires pass from the jars by the side of the rods, the wires being broken at the station on each floor or room where the instrument is designed to be used, by the insertion of leaf springs which, as the slide reaches the station, come in contact with projecting metallic feet on the slide, and thus make the battery connection with the instrument.

The line and ground connections are made by means of leaf springs set in the grooves of the slide and held against the metallic rods by spiral springs. The springs are metallically connected through the slide with the instrument. Several offices in one building, or the various floors of a building, may be each provided with a station, and one set of telephone instruments be made to serve all the stations. The party wishing to use the instrument goes to the dummy, and if the slide bearing the instrument is not at his station takes hold of the rope and pulls the slide in the direction required. As the slide comes to his station or floor the battery-circuit is completed and the telephone is before him, ready for use.

The inventor proposes to introduces this improvement, and claims that it will so cheapen the telephone as to put it in every building, and will enable so much more work to be done with a single set of instruments, as to largely increase the profits to the companies.

The Telephone.

HOW IT WILL BE USED IN THE REGULATION OF TIME-KEEPERS HEREAFTER—SOME INTERESTING FACTS.

In response to an invitation from Manager Keech of the telephone exchange last Saturday, a representative of the *Register* got into that gentleman's carriage and was taken to the Observatory. There Prof. Harrington and Mr. A. T. Hill, of M. S. Smith & Co., Detroit, were waiting Mr. Keech's arrival in order to try the experiment of "sending the time" to Detroit by telephone. Some time ago M. S. Smith & Co. placed one of their most accurate and best constructed clocks in the Observatory and corrected their own time-keepers at Detroit from this one, the corrections being made by telegraph. Attached to the frame of the large regulator are the essential parts of an ordinary clock. At 9 o'clock 13 minutes and 32 seconds (8:58 Chicago time), the larger clock, by means of a connecting rod, puts the small one in motion and this in turn communicates the action to an ordinary sounder, such as is used in all telegraph offices. For the first minute this makes one sound each second, but as the auxiliary clock enters upon its second minute the sounder by an ingeniously contrived arrangement is made to give two clicks for each second. At the end of this minute the action of the small clock and sounder ceases. It will be seen that three opportunities are given to note the differences in time; one when the sounder begins to operate, one when the second minute is begun, and the third at the end of the second minute. A few minutes before 9 o'clock, Chicago time, all communication on the company's wire along the Michigan Central is stopped and at every station, and at M. S. Smith's store, Detroit, the correct Chicago time is taken. All this operation, so far as the apparatus in Prof. Harrington's room is concerned, is entirely automatic. At Detroit the correct city time is obtained from the Chicago time by adding the difference between that at Dearborn Observatory and that at the City Hall, Detriot, which is about 18 minutes and 18 seconds.

The object of the experiment Saturday was to see if the action of the sounder could be distinctly heard at Detroit through an ordinary telephone. Connection was made with the Adrian wire so as to give a straight line into the city with no relays, and a common Blake transmitter was placed before the sounder. The secondary clock was put in motion, and both single and the double beats of the sounder were clearly heard in Detroit. The operation was repeated twice and proved very successful each time. As the telephone transmits the sound with the same velocity as the telegraph, the only correction needed is that of the difference between the Observatory and the City Hall—about 2 minutes and 46 seconds. Considering the success of the experiment, M. S. Smith & Co. will arrange a clock and sounder in their store similar to the one at the Observatory, and will then telephone correct time to any town in the circuit which desires it.

The Matter with the Telephone.

The following extract from the *Detroit Free Press*, graphically exemplifies human nature, when examined through the medium of a telephone.

"I don' know vhat I shall do mit dat telephone of mine," observed a citizen as he entered the headquarters of the company yesterday and sat down in a discouraged way.

"Out of order, is it?"

"Sometimes it vhas, und sometimes it vhas all right. If I go to speak mit der coal man, or der city hall, or der butcher, it vhas right, und I can hear every word. If somebody vhants to order my peer, I get the name shust as plain as daylight."

"And when does it fail?"

"Vhell, shust like two hours ago. A saloon man he owes me $18, und I rings him oop und calls out, 'Hello! hello! I likes dot monish to-day!' Den he vhants to know who I am, und he says he can't catch der name. I tell him oafer, und by und by he calls oot dot he doan' deal in watermelons, und dot he goes in to pave Gratiof street, und dot he is sorry he can't sign my betition to der council. Den I haf to go all oafer again, und he tells me to stand back, und to come closer, und to speak louder, und at last he gits mad und tells me dot if I call him a dandy again he'll proke my head. It's no use—I can't make one of my customers hear me. If sometings doan' ail all my telephone, it may be ash my voice is giving out. I vish you would examine me und see if I had better let my son Shon do der talking vhile I keep der pooks."

For Sale—The target used by the American rifle team. It is slightly injured by exposure to the weather, but otherwise as good as new.

Paris Exposition Notes.

During the Electrical Exposition here last year, being the superintendent of our part of the show, I had the occasion to hear many droll questions, like these:—

An old gentleman walks in the Opera Auditorium rooms and politely taking off his hat to the employe in charge—

"I beg pardon, sir, I am deaf; I do not come to hear, but I should like very much to *see!*"

"Very well sir, please put these instruments to your eyes very close."

Placing the telephone to his eyes, exclaimed:

"But I don't see anything!"

"Strange! the gas must be turned out then."

An old lady putting the receivers to her ears during an intermission and hearing the shifting of the scenery and the noise in the theatre, indignantly remarks—

"I do wish there was less noise here so I could hear the singing!"

A smart young fellow comes up to me and pointing to the cover of a magneto call bell—

"This is the battery, is it not?"

"Yes, sir; and the bell is in this box here below."

"That's what I always thought; thank you."

Another remarking that the magnet lends weight to the telephone, said confidentially to me—

"Why don't you make that bar out of wood?"

! ! ! ? ? ?

Another old gent' inquires—

"Please, sir, what is the minimum diameter of the tubes?"

"What tubes?"

"Why, the conducting tubes to send the words to the other station."

"Ah! . . . . I really don't know."

"Do you know the best material to make the tubes with?"

"Macaroni, I think."

"Sir! you are ridiculizing me, I . . . ."

"What do you want to ask me the diameter of the tubes for then?"

He never understood. G. P. G.

The Caligraph.

The Caligraph is a new style of type-writer invented by Prof. W. G. Chaffee, of Chaffee's Phonographic Institute of Oswego, N. Y., and, judging from what we have seen of it and the testimony of others, it is impossible to commend it too highly. A correspondent who has long used one of these machines, says: "I consider the Caligraph one of the greatest labor saving machines ever invented. I do not think I could do business without it, and it is only a question of time when it will be as common as the sewing machine or cabinet organ, and be used in every office, school, and well-regulated family in the country. As compared with any other writing machine in the market, I consider it superior in every particular."

The Railway Mileage of the United States.

The *Railway Age* compiles from "Poor's Manual," the following table, showing the railway mileage of each State on Jan. 1, 1882, with the numerical rank of the several States in railway enterprise.

1.	Illinois	8,326	
2.	Pennsylvania	6,690	
3.	Ohio	6,664	
4.	New York	6,279	
5.	Iowa	6,113	
6.	Texas	5,344	
7.	Indiana	4,765	
8.	Michigan	4,284	
9.	Missouri	4,211	
10.	Kansas	3,718	
11.	Wisconsin	3,442	
12.	Minnesota	3,391	
13.	Georgia	2,581	
14.	Nebraska	2,310	
15.	Colorado	2,275	
16.	California	2,261	
17.	Virginia	2,194	
18.	Tennessee	1,974	
19.	Massachusetts	1,935	
20.	Alabama	1,804	
21.	New Jersey	1,753	
22.	Kentucky	1,715	
23.	Dakota Ter.	1,639	
24.	North Carolina	1,61	
25.	South Carolina	1,488	
26.	Mississippi	1,234	
27.	Maryland and D. C.	1,042	
28.	Arkansas	1,042	
29.	New Hampshire	1,026	
30.	Maine	1,022	
31.	Louisiana	999	
32.	New Mexico Ter.	975	
33.	Connecticut	959	
34.	Vermont	916	
35.	Utah Ter.	908	
36.	Nevada	890	
37.	Florida	793	
38.	West Virginia	712	
39.	Oregon	689	
40.	Arizona Ter.	557	
41.	Wyoming Ter.	533	
42.	Washington Ter.	480	
43.	Delaware	278	
44.	Indian Ter	275	
45.	Idaho Ter	265	
46.	Montana Ter.	232	
47.	Rhode Island	211	
	Total miles		104,813

Mr. Pender's Movements.

Mr. John Pender, M. P., the English "Cable King," yesterday took lunch with Mr. Cyrus W. Field, and in the evening was present at a dinner given by Grosvenor P. Lowery, Esq., to Capt. Shaw, of the London Fire Brigade, at the Union Club. There were also present Dr. Norvin Green, Judge Noah Davis, Prof. T. A. Edison, Mr. Swinyard, of Canada, and other gentlemen eminent in telegraph and electrical matters. Mr. Pender, after a visit to Boston, expects to return to England by the Alaska on October 17.—*Evening Mail.*

Seventy-six courses of stone, making 152 vertical feet, have been laid since work recommenced in earnest upon the Washington Monument. Its height is now 302 feet.

Make other men's shipwrecks thy sea mark.

He was so mad to find his wife not at home that he took the soap and wrote across the looking-glass, "Betsey Jane is a big fool." She amended it with "'s wife," and left it for him to chaw on.

The Detroit *Free Press* says: "If you could only see the girls of Ashantee, you wouldn't blame the king for killing two hundred at once." From all of which we infer that Ashantee bells are of the Milwaukee style of beauty.

Huxley says "there was a time when men walked on all fours." He probably alludes to that interesting time in the early life of us all when we approached a neighbor's melon patch from the back way.—*Deacon Richard Smith.*

A Suspicious Character.—A prominent Austin politician woke up his colored man a few nights ago and told him to search the house, as he was sure there was a burglar on the premises. The darkey hunted the house all over and reported as follows: "Colonel, I has hunted from top to bottom, and if dar is any 'spishous character 'ceptin' you in de house, I can't find him."—*Texas Siftings.*

He continually played on the horn "Sweet Maiden Hear My Prayer." The maiden lady next door sent word, with her "compliments," that she heard his prayer, and she would pay a month's board for him, "in advance," if he'd move to another part of the town.

At a wedding not long since, among the presents displayed, was a $1,000 bank note from the father of the bride. After the wedding was over the old gentleman folded up the note and put it back in his vest pocket. The conduct of that doting father reminds one very much of the promises of reform made by candidates previous to the election as contrasted with their performances when the election is over.

Can you remember one single instance this last summer where an actress has had her $6,000 diamonds stolen? As soon as the papers began charging twenty cents per line for publishing such items it killed the robbery business stone dead.—*Detroit Free Press.*

We think our civilization is near its meridian, but we are yet only at the cockcrowing and the morning star.—*Emerson.*

Common sense does not ask an impossible chessboard, but takes the one before it and plays the game.—*McGregor.*

Pleasure may be aptly compared to many great books, which increase in real value in the proportion they are abridged.

Be courageous and noble-minded; our own heart, and not other men's opinions of us, forms our true honor.—*Schiller.*

A Suggestion on Missionary Labors.

When a Hindoo priest baptizes a little babe he uses the following words: Little babe, thou enterest the world weeping, while all around thee smile; contrive to live that thee may depart in smiles, while all around thee weep." Let's see, these Hindoo people are the ones we send tracts to, are they are not? Why wouldn't it be a good idea to have them send us some of their religion in exchange for our tracts?

NEW PATENTS—ELECTRICAL—1882.

Index of Inventions for which Letters Patent of the United States were Granted in the Week Ending Sept. 12th, 1882.

264,230. Commutator for Dynamo-Electric Machines. George W. Beardslee, Brooklyn, N. Y., assignor to William F. Jobbins, East Orange, N. J. Filed May 29, 1882. (No model.)

264,271. Commutator-Brush Holder. Walter K. Freeman, Brooklyn, N. Y., assignor to W. F. Jobbins, East Orange, N. J. Filed June 12, 1882. (No model.)

264,292. Coupling Device for Electrical Conductors. Edward H. Johnson, New York, N. Y., assignor of one-half to Sigmund Bergmann, same place. Filed Nov. 28, 1881 (No model.)

264,299. Connection for Electric Circuits. Edward H. Johnson, New York, N. Y., assignor of one-half to Sigmund Bergmann, same place. Filed Nov. 28, 1881. (No model.)

264,227. Dynamo-Electric Machine. George W. Beardslee, Brooklyn, N. Y., assignor, to William F. Jobbins, East Orange, N. J. Filed May 19, 1882. (No model.)

264,228. Dynamo-Electric Machine. George W. Beardslee, Brooklyn, N. Y., assignor to William F. Jobbins, East Orange, N. J. Filed June 2, 1882. (No model.)

264,229. Dynamo-Electric Machine. George W. Beardslee, Brooklyn, N. Y., assignor to William F. Jobbins, East Orange, N. J. Filed May 19, 1882. (No model.)

264,372. Duplex and Multiplex Telegraph. Benjamin Thompson, Buffalo, N. Y. Filed May 18, 1882. (No model.)

264,328. Electric Lamp. Albanus W. Morton, Rahway, N. J. Filed Dec. 22, 1881. (No model.)

264,264. Electrical Signaling Apparatus. Walter J. Dudley, Boston, Mass. Filed Nov. 11, 1880. (No model.)

264,267. Electric-Arc Lamp. Frederick K. Fitch, New York, N. Y. Filed May 8, 1882. (No model.)

264,269. Electric-Arc Lamp. Walter K. Freeman, Brooklyn, N. Y., assignor to W. F. Jobbins, East Orange, N. J. Filed June 15, 1882. (No model.)

264,270. Electric-Arc Lamp. Walter K. Freeman, Brooklyn, N. Y., assignor to W. F. Jobbins, East Orange, N. J. Filed June 12, 1882. (No model.)

264,272. Electric Motor. Walter K. Freeman, Brooklyn, N. Y., assignor to W. F. Jobbins, East Orange, N. J. Filed June 12, 1882. (No model.)

264,346. Electric Lamp. Hermann Sedlaczek and Franz Wikulill, Leben, Austria, and Sigmund Schuckert, Nuremberg, Bavaria, Germany. Filed Jan. 19, 1882. (No model.) Patented in Germany June 6, 1879, No. 8,580; in France June 11, 1879, No. 131,152; in Belgium June 12, 1879, No. 48,449, and Apr. 20, 1881, No. 54,426; in Austria, Hungary, Aug. 6, 1879, No. 19,078, and Oct. 28, 1879, No. 29,952, and in England Apr. 12, 1881, No. 1,590.

264,096. Galvanic Battery. Lyman D. McIntosh, Chicago, Ill. Filed June 10, 1882. (No model.)

264,304. Galvanic Battery. Frank E. Kinsman, New York, N. Y. Filed June 17, 1882. (No model.)

264,109. Polarized Bell. Charles E. Scribner, Chicago, Ill, assignor to the Western Electric Manufacturing Company, same place. Filed Oct. 18, 1880. (Model.)

264,348. Pole-Changing Key. Thomas Shaw, Philadelphia, Pa. Filed Feb. 7, 1881. (No model.)

264,211. Secondary Battery. Charles F. Brush, Cleveland, Ohio. Filed June 28, 1882. (No model.)

264,257. Voltaic-Arc Electric Lamp. Charles

Ferdinand De La Roche, Paris, France. Filed July 7, 1882. (No model.)

FOR WEEK ENDING SEPT. 19TH, 1882.

264,722. Conduit for Underground Electric Wire Cables. James Mackintosh, Philadelphia, Pa. Filed June 16, 1882. (No model.)

264,777. Cut-Out for Electric Circuits. Robert J. Sheehy, New York, N. Y. Filed Apr. 20, 1882. (No model.)

264,646. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J,, assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,647. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Oct. 4, 1881. (No model.)

264,648. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 11, 1881. (No model.)

264,649. Dynamo or Magneto Electric Mechine. Thomas A. Edison, Menlo Park, N. J,, assignor to the Edison Electric Light Company, New York, N. Y. Filed Mar. 20, 1880. (No model.) Patented in England Apr. 5, 1885, No. 1,385; in Canada Oct. 9, 1880, No. 11,857; in Italy Oct. 12, 1880; in Belgium Oct, 15, 1880, No. 52,698; in Victoria Nov. 17, 1880, No. 2,926; in France Nov. 27, 1880, No. 138,941; in Austria Dec. 24, 1880; in New South Wales Jan. 19, 1881; in Queensland Feb, 7, 1881; in Spain Feb. 21, 1881; in New Zealand Mar. 7, 1881, No. 511; in Portugal Mar. 31, 1881, No. 660, and in India Apr. 12, 1881, No. 278.

264,642. Electro Distribution and Translation System. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Aug. 9, 1880. (No model.) Patented in England Sept. 24, 1880, No. 3,880; in Canada Nov. 15, 1880, No. 11,997; in Italy Nov. 19, 1880; in Belgium Nov. 30, 1880, No. 53,018; in France Jan, 3, 1881, No. 139,588; in Victoria Jan. 4, 1881, No. 2,944; in Austria Feb. 3, 1881; in New South Wales Mar. 7, 1881; in New Zealand Mar. 7, 1881, No. 512; in Queensland Mar. 9, 1881; in Spain Apr. 2, 1881, and in India July 20, 1881, No. 528.

264,698. Electric Lamp. William Holzer, Menlo Park, N. J., assignor, by mesne assignments, to the Edison Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,517. Incandescent Electric Lamp. William Crookes, London, England. Filed Aug., 1882. (No model.) Patented in England Aug. 31, 1881, No. 3,798; in France Sept. 30, 1881, No. 145,080, and in Italy May 26, 1882, No. 14,225.

264,651. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,652. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,653. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,654. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,655. Incandescing Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.) Patented in England Sept. 27, 1881, No. 4,174; in Italy Nov. 9, 1881; in France Dec. 5, 1881, No. 145,554; in Canada Dec. 14, 1881, No. 13,835, and in India Jan. 18, 1882, No. 74.

264,656. Incandescent Electric Lamp Thomas A. Edison, Menlo Park, N. J. Filed Aug. 14, 1882. (No model.)

264,657. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Aug. 30, 1881. (No model.)

264,737. Incandescing Electric Lamp. Samuel D. Mott, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 29, 1881. (No model.)

264,843. Individual Call for Telephone or Other Circuits. William H. Prentice and Samuel H. Beckwith, Utica, N. Y., assignors to Frank J. Callanen, same place. Filed Oct. 11, 1881. (Model.)

264,643. Magneto-Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed May 12, 1879. Patented in Belgium June 16, 1879, No. 48,341; in England June 17, 1879, No. 2,402; in Italy June 23, 1879; in Victoria Aug. 16, 1879; No. 2,685; in France Aug. 25, 1879, No. 130,910; in Sweden Sept. 24, 1879; in Spain Oct. 4, 1879; in Norway Jan. 20, 1880; in Austria-Hungary Jan. 22, 1880; in Denmark June 11, 1880 and in Germany Feb. 7, 1881, No. 12,033.

264,658. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,659. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,660. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,661. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,662. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,663. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,664. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,665. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,666. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264 667. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,668. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,669. Regulator for Dynamo-Electric Machines. Thomas A Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,670. Regulator for Dynamo Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,671. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,672. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,673. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,645. System of Conductors for the Distribution of Electricty. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Oct. 7, 1880. (No model.)

264,631. Telephone Exchange System. George W. Coy, Milford, Conn , assignor of two-thirds to James G. Smith, Hackensack, N. J., and Charles E. Buell, Washington, D. C. Filed Feb. 23, 1882. (No model.)

264,618. Voltaic-Battery Plate. Alexander Brown, Brooklyn, N. Y. Filed June 14, 1882. (No model.)

A printed copy of the specification and drawing of any patent published herein, also of any patent issued since 1865, will be furnished by any of the patent solicitors whose advertisements appear in this journal. In ordering, please state the number and date of the patent desired.

Recent Patent Decisions.

APPLICATION.

(See abandoned applications, 1; Date of Application, 1; Interferences, 2; Renewed Applications, 1.)

I. CONTINUOUS APPLICATION—PUBLIC USE.

Where a second application is filed for a certain part of an invention disclosed in a prior application the two applications will be regarded as a continuous proceeding, and public use of the invention, to defeat a patent granted upon such second application, must be shown to have occurred more than two years prior to the first application.

[*Graham *v.* McCormick *et al.*, 1533.

2. AMENDMENT OF APPLICATION—NEW MATTER—SUPPLEMENTAL OATH.

Under Rule 47 an applicant may introduce into his application by amendment a part of the invention originally made which was not incorporated into the application either as a part of the specification or claim, if he swears that the matter which he desires to introduce into his application and make a part thereof was a part of his original invention.

[*Ex parte* McDougall, 1783.

3. SAME—SAME—DATE OF COMPLETION OF APPLICATION CHANGED.

Under this practice, however, the Examiner will enter the date of the new oath on the face of the file-wrapper and change the date of the completion of the filing of the application to agree therewith. [Ibid.

CONSTRUCTION OF STATUTES.

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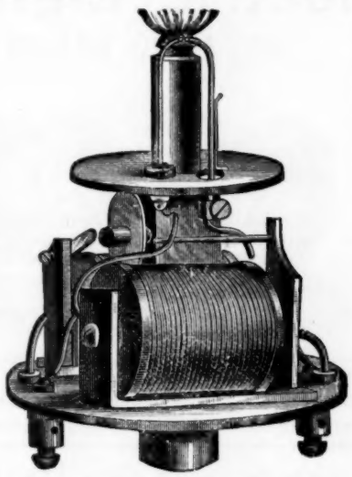

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Miscellaneous Stocks.

Ferdinand De La Roche, Paris, France. Filed July 7, 1882. (No model.)

FOR WEEK ENDING SEPT. 19TH, 1882.

264,722. Conduit for Underground Electric Wire Cables. James Mackintosh, Philadelphia, Pa. Filed June 16, 1882. (No model.)

264,777. Cut-Out for Electric Circuits. Robert J. Sheehy, New York, N. Y. Filed Apr. 20, 1882. (No model.)

264,646. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J,, assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,647. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Oct. 4, 1881. (No model.)

264,648. Dynamo or Magneto Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 11, 1881. (No model.)

264,649. Dynamo or Magneto Electric Mechine. Thomas A. Edison, Menlo Park, N. J,, assignor to the Edison Electric Light Company, New York, N. Y. Filed Mar. 20, 1880. (No model.) Patented in England Apr. 5, 1885, No. 1,385; in Canada Oct. 9, 1880, No. 11,857; in Italy Oct. 12, 1880; in Belgium Oct, 15, 1880, No. 52,698; in Victoria Nov. 17, 1880, No. 2,926; in France Nov. 27, 1880, No. 138,941; in Austria Dec. 24, 1880; in New South Wales Jan. 19, 1881; in Queensland Feb, 7, 1881; in Spain Feb. 21, 1881; in New Zealand Mar. 7, 1881, No. 511; in Portugal Mar. 31, 1881, No. 660, and in India Apr. 12, 1881, No. 278.

264,642. Electro Distribution and Translation System. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Aug. 9, 1880. (No model.) Patented in England Sept. 24, 1880, No. 3,880; in Canada Nov. 15, 1880, No. 11,997; in Italy Nov. 19, 1880; in Belgium Nov. 30, 1880, No. 53,018; in France Jan, 3, 1881, No. 139,588; in Victoria Jan. 4, 1881, No. 2,944; in Austria Feb. 3, 1881; in New South Wales Mar. 7, 1881; in New Zealand Mar. 7, 1881, No. 512; in Queensland Mar. 9, 1881; in Spain Apr. 2, 1881, and in India July 20, 1881, No. 528.

264,698. Electric Lamp. William Holzer, Menlo Park, N. J., assignor, by mesne assignments, to the Edison Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,517. Incandescent Electric Lamp. William Crookes, London, England. Filed Aug., 1882. (No model.) Patented in England Aug. 31, 1881, No. 3,798; in France Sept. 30, 1881, No. 145,080, and in Italy May 26, 1882, No. 14,225.

264,651. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model)

264,652. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

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264,654. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,655. Incandescing Electric Lamp. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.) Patented in England Sept. 27, 1881, No. 4,174; in Italy Nov. 9, 1881; in France Dec. 5, 1881, No. 145,554; in Canada Dec. 14, 1881, No. 13,835, and in India Jan. 18, 1882, No. 74.

264,656. Incandescent Electric Lamp Thomas A. Edison, Menlo Park, N. J. Filed Aug. 14, 1882. (No model.)

264,657. Incandescent Electric Lamp. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Aug. 30, 1881. (No model.)

264,737. Incandescing Electric Lamp. Samuel D. Mott, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 29, 1881. (No model.)

264,843. Individual Call for Telephone or Other Circuits. William H. Prentice and Samuel H. Beckwith, Utica, N. Y., assignors to Frank J. Callanen, same place. Filed Oct. 11, 1881. (Model.)

264,643. Magneto-Electric Machine. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed May 12, 1879. Patented in Belgium June 16, 1879, No. 48,341; in England June 17, 1879, No. 2,402; in Italy June 23, 1879; in Victoria Aug. 16, 1879; No. 2,685; in France Aug. 25, 1879, No. 130,910; in Sweden Sept. 24, 1879; in Spain Oct. 4, 1879; in Norway Jan. 20, 1880; in Austria-Hungary Jan. 22, 1880; in Denmark June 11, 1880 and in Germany Feb. 7, 1881, No. 12,033.

264,658. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model.)

264,659. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J. Filed Aug. 7, 1882. (No model)

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264,673. Regulator for Dynamo-Electric Machines. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Nov. 28, 1881. Renewed Aug. 14, 1882. (No model.)

264,645. System of Conductors for the Distribution of Electricty. Thomas A. Edison, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Oct. 7, 1880. (No model.)

264,631. Telephone Exchange System. George W. Coy, Milford, Conn , assignor of two-thirds to James G. Smith, Hackensack, N. J., and Charles E. Buell, Washington, D. C. Filed Feb. 23, 1882. (No model.)

264,618. Voltaic-Battery Plate. Alexander Brown, Brooklyn, N. Y. Filed June 14, 1882. (No model.)

A printed copy of the specification and drawing of any patent published herein, also of any patent issued since 1865, will be furnished by any of the patent solicitors whose advertisements appear in this journal. In ordering, please state the number and date of the patent desired.

Recent Patent Decisions.

APPLICATION.

(See abandoned applications, 1; Date of Application, 1; Interferences, 2; Renewed Applications, 1.)

I. CONTINUOUS APPLICATION—PUBLIC USE.

Where a second application is filed for a certain part of an invention disclosed in a prior application the two applications will be regarded as a continuous proceeding, and public use of the invention, to defeat a patent granted upon such second application, must be shown to have occurred more than two years prior to the first application.

[*Graham *v.* McCormick *et al.*, 1533.

2. AMENDMENT OF APPLICATION—NEW MATTER—SUPPLEMENTAL OATH.

Under Rule 47 an applicant may introduce into his application by amendment a part of the invention originally made which was not incorporated into the application either as a part of the specification or claim, if he swears that the matter which he desires to introduce into his application and make a part thereof was a part of his original invention.

[*Ex parte* McDougall, 1783.

3. SAME—SAME—DATE OF COMPLETION OF APPLICATION CHANGED.

Under this practice, however, the Examiner will enter the date of the new oath on the face of the file-wrapper and change the date of the completion of the filing of the application to agree therewith. [Ibid.

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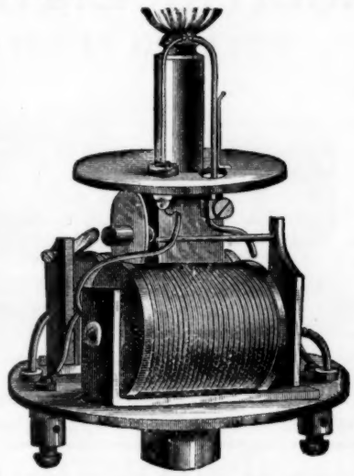

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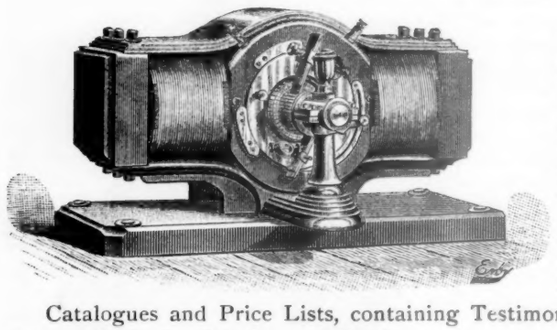

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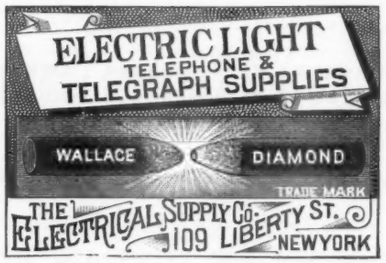

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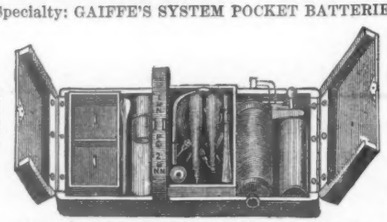

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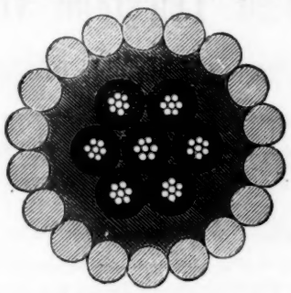

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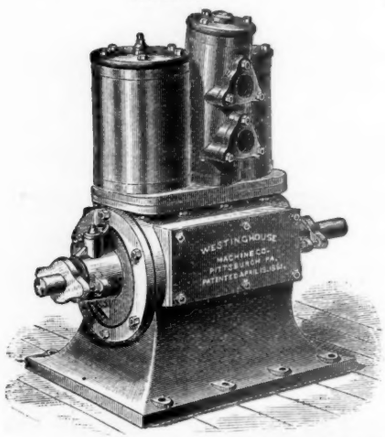

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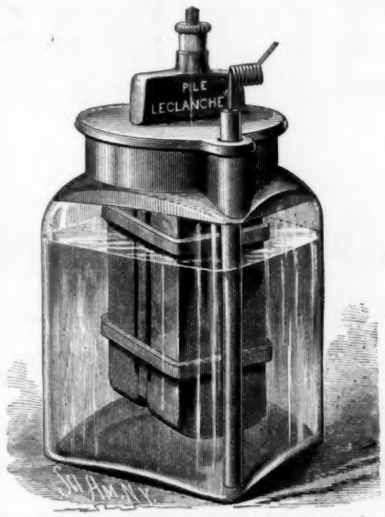

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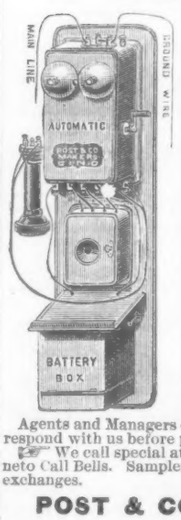

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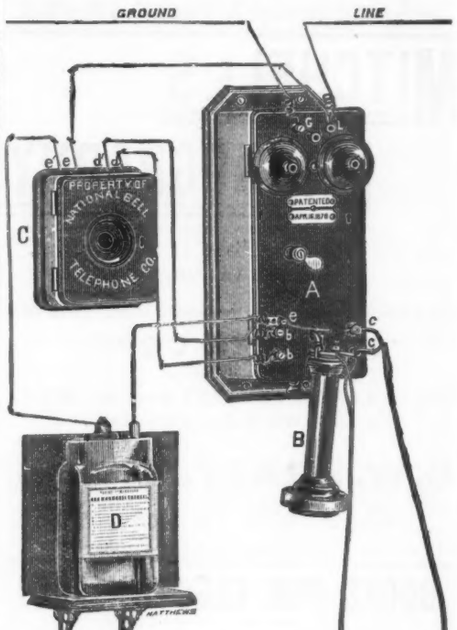

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